

Amendments to the Claims**IN THE CLAIMS:**

Please cancel Claims 1-11, without prejudice, and please add new Claims 12-44 such that the pending claims read as follows:

Claims 1-11. (Canceled)

Claim 12. (New) A method for depositing a diffusion barrier and a metal conductive layer for a metal interconnect on a substrate, comprising:

- (a) depositing a first portion of the diffusion barrier over a surface of the substrate; and
- (b) etching the first portion of the diffusion barrier at the bottom of a via while depositing a second portion of the diffusion barrier elsewhere on the substrate.

Claim 13. (New) The method of claim 12, wherein the etching of the first portion is performed at least partly through the diffusion barrier.

Claim 14. (New) The method of claim 12, wherein the etching of the diffusion barrier is performed for a plurality of vias.

Claim 15. (New) The method of claim 12, further comprising:

- (c) depositing the metal conductive layer over the surface of the substrate such that the metal conductive

layer contacts the barrier material remaining at the bottom of the via.

Claim 16. (New) The method of Claim 15, wherein the deposition of the metal conductive layer is performed for a plurality of vias.

Claim 17. (New) The method of claim 12, wherein at least part of step (a) and all of step (b) are performed in a single processing chamber.

Claim 18. (New) The method of claim 12, wherein the metal conductive layer comprises copper.

Claim 19. (New) The method of claim 12, wherein the metal conductive layer is a seed layer.

Claim 20. (New) The method of claim 12, wherein the diffusion barrier comprises a sputtered metal.

Claim 21. (New) The method of Claim 20, wherein the sputtered metal is at least one of tantalum, tantalum nitride, and titanium.

Claim 22. (New) The method of claim 12, wherein the diffusion barrier comprises at least one of tantalum and tantalum nitride.

Claim 23. (New) The method of claim 12, wherein the diffusion barrier comprises titanium nitride.

Claim 24. (New) The method of claim 12, wherein the diffusion barrier comprises at least one of tungsten and tungsten nitride.

Claim 25. (New) The method of Claim 20, wherein the sputtered metal is at least one of tungsten and tungsten nitride.

Claim 26. (New) The method of claim 12, wherein steps (a) and (b) are performed in a single processing chamber.

Claim 27. (New) The method of claim 12, wherein step (b) comprises a PVD etch/deposition process in which an RF frequency is applied to the substrate.

Claim 28. (New) The method of claim 15, wherein steps (a), (b) and (c) are performed a single processing tool.

Claim 29. (New) A method for depositing a diffusion barrier and a metal conductive layer for a metal interconnect on a substrate, comprising:

(a) depositing a first portion of the diffusion barrier over a surface of the substrate;

(b) etching at least part-way through the first portion of the diffusion barrier at the bottom of a via while depositing a second portion of the diffusion barrier elsewhere on the substrate; and

(c) depositing the metal conductive layer over the surface of the substrate, including the first portion of the diffusion barrier at the bottom of a via,

wherein at least part of step (a) and all of step (b) are performed in a single processing chamber.

Claim 30. (New) The method of claim 29, wherein the depositing of the first portion of the diffusion barrier is performed for a plurality of vias.

Claim 31. (New) The method of Claim 30, wherein the etching at least part-way through the first portion of the diffusion barrier is performed for the plurality of vias.

Claim 32. (New) The method of claim 29, wherein the metal conductive layer comprises copper.

Claim 33. (New) The method of claim 29, wherein the metal conductive layer is a seed layer.

Claim 34. (New) The method of claim 29, wherein the diffusion barrier comprises a sputtered metal.

Claim 35. (New) The method of Claim 34, wherein the sputtered metal is tantalum.

Claim 36. (New) The method of Claim 34, wherein the sputtered metal is at least one of tantalum and tantalum nitride.

Claim 37. (New) The method of Claim 34, wherein the sputtered metal is titanium nitride.

Claim 38. (New) The method of Claim 34, wherein the sputtered metal is at least one of tungsten and tungsten nitride.

Claim 39. (New) The method of claim 29, wherein the diffusion barrier comprises tantalum.

Claim 40. (New) The method of claim 29, wherein the diffusion barrier comprises at least one of tantalum and tantalum nitride.

Claim 41. (New) The method of claim 29, wherein the diffusion barrier comprises titanium nitride.

Claim 42. (New) The method of claim 29, wherein the diffusion barrier comprises at least one of tungsten and tungsten nitride.

Claim 43. (New) The method of claim 29, wherein step (a) comprises a PVD etch/deposition process in which an RF frequency is applied to the substrate.

Claim 44. (New) The method of claim 29, wherein steps (a), (b) and (c) are performed in a single processing tool.